SYPHILITIC PARALYSIS OF THE TRIGEMINAL NERVE.

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The trigeminal nerve is seldom paralyzed without implication of other cranial nerves, and the suspicion is occasionally entertained that syphilis may be the cause of this paralysis. It is important to know the frequency of syphilitic disease of this nerve, especially of paralysis confined to this nerve. We have several times found bilateral degeneration of the trigeminal nerve, including the spinal root, in tabes.

Oppenheim[1] refers to a long list of authors who speak of implication of the trigeminal nerve in cerebral syphilis, but apparently he is referring chiefly to the clinical manifestations, although he mentions that he has had confirmatory pathological findings. In one of his cases the spinal root of this nerve was affected, as it was also in a case reported by Brasch, and in one reported by F. Pick. According to Uhthoff's statistics, the trigeminal nerve seems to be implicated in syphilis as often as the abducent nerve, that is, in 14 per cent. of all cases of cerebral syphilis. Usually the implication of this nerve is unilateral, although exceptions to this rule occur (Leudet and Labarrière, Hutchinson). The sensory branch is much more frequently affected than the motor. Pronounced paralysis of the muscles of mastication with atrophy has occurred very exceptionally (v. Ziemssen, Loewenfeld, Oppenheim).

Nonne[2] states that Huguenin found gumma of the Gasserian ganglion; Balfour, gumma of the sella turcica, with pressure on the trigeminal nerve; and Uhthoff, in 37 necropsies in which the trigeminal nerve was found diseased, observed involvement of this nerve alone only in four. Degeneration of the spinal root of the trigeminal nerve in cerebral syphilis he states has been observed by Oppenheim, F. Pick, Brasch, and Cassirer. In all these cases the involvement of the nerve was unilateral. In Pick's case the trigeminal nerve was implicated in a gumma, in Cassirer's the cause was intense basal meningitis, in Oppenheim's and in Pick's the Gasserian ganglion was diseased.

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[1] Oppenheim. Nothnagel's System of Medicine.

[2] Syphilis und Nervensystem, second edition, p. 233.

Recently one of us (Spiller) has seen a case of cerebral syphilis in consultation with Dr. S. R. Crothers, in which left hemiparesis was associated with partial palsy of the third nerves and weakness of the motor branch of the right trigeminal nerve. The sensory branch of the trigeminal nerve was not affected. When hemiplegia from syphilis is associated with paralysis of cranial nerves, two lesions usually are found as the causes of the symptoms: a basal syphilitic meningitis producing the cranial nerve palsies, and arteritis producing occlusion of a bloodvessel with softening in the region of the internal capsule.

Five years ago a case of syphilitic disease of the fifth nerve was studied clinically by one of us (Spiller) and later the microscopic examination was conducted by us conjointly. The extraordinary fibrillary tremors of the right masseter muscle indicated that this muscle was in a condition of acute degeneration. So far as could be determined from the history and the examination, the only cranial nerve affected was the fifth on the right side, although the eyegrounds were not examined; and this fifth nerve palsy was associated with recent right hemiplegia implicating the right side of the face as well as the limbs. The palsy of the fifth nerve was inferred from the intense fibrillary contractions confined to the masseter muscle, as the man was too unconscious to respond to tests, and confirmation was obtained by the microscopic examination. No statement is made as to fibrillary contractions in the right temporal muscle, although they may have been present. The palsy affected the motor branch, and this is more uncommon than is implication of the sensory branch, but from the history it is probable that the sensory branch did not escape, as it is stated that he had pain on one side of the face. No gross lesion explanatory of the fifth nerve palsy was recorded in the notes taken by the pathologist (Dr. Alburger) who performed the necropsy, and it is probable, therefore, that it was caused by the intense syphilitic meningitis found by the microscope.

W. L., laboratory number 111, male, aged thirty-five years, colored, was admitted to the service of Dr. Stengel, March 2, 1904. About one year previously he had a stroke involving the left upper limb, which was partially paralyzed, and from this he never entirely recovered. He always dragged the left lower limb slightly after this attack.

He had suffered from "neuralgic" headaches, as he called them, a number of years. The pain was usually on one side of the face and head. It is presumable that it was on the right side, although it is not so stated. He seemed well four days before admission to the hospital. On the evening of February 29 he complained of headache, but seemed well the following day and went to work, but had to stop work because of the headache; about six o'clock his friends noticed that he could not speak, although he was still able to walk about, and he ate moderately at the evening meal. He retired soon after dinner; on the following morning he was unable to get out of bed, and was unconscious; he could not answer questions, and could take neither water nor food.

Notes taken by Dr. Spiller shortly after his admission to the hospital are as follows: The patient is unconscious. When he is called by name he opens his eyes, but makes no sign of understanding what is said to him. He does not open his eyes very widely. The eyeballs are not deviated. He is able to look upward and to the left, but it is impossible to test the movements of the eyeballs carefully. He closes the eyelids firmly on each side, and seems to have a little flattening of the lower part of the right side of the face.

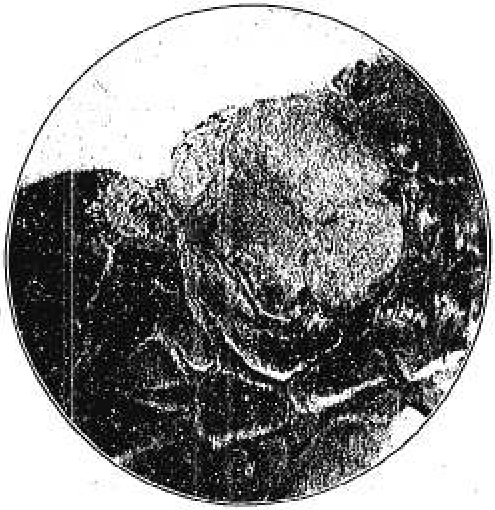
When he is told to show his teeth he attempts to do so, and the lower part of the face is moved only on the left side. He has, therefore, paralysis of the lower part of the right side of the face, but it is impossible to get him to show the tongue. The right side of the face does not contract when it is stuck with a pin, but marked contraction occurs on the left side of the face. Very intense fibrillary contractions occur continually in the right masseter muscle. The contraction of the masseter muscles cannot be tested, as it is impossible to get the man to make chewing movements.

Upper limbs: He raises the left upper limb freely above the head. The right upper limb is in slightly increased tonicity. The biceps-tendon and triceps-tendon jerks and wrist reflexes are exaggerated on the right side. The corresponding reflexes on the left side are about normal. When the right upper limb is stuck with a pin very little attempt is made to move it, but he tries unsuccessfully to find the source of irritation with the left hand. Sensation for pain is probably preserved in each upper limb. The left upper limb is somewhat spastic.

Lower Limbs: The right lower limb is paralyzed. He can flex the right thigh slightly when the limb is stuck with a pin, and can flex the right knee slightly. The left lower limb is moved freely. The pinprick is perceived well in each lower limb. The right patellar reflex is exaggerated; the left is about normal. The Achilles jerk seems to be about normal on each side. A slight indication of ankle clonus is obtained on the right side. Babinski's reflex is not obtained on the right side, the toes not being moved at all. It is obtained on the left side, all the toes except the big toe being distinctly moved upward. The right lower limb is somewhat spastic, the left is about normal.

The man died shortly after admission to the hospital.

An area of softening was found in the left temporal lobe. Sections stained with the hemalum and acid fuchsin showed an intense round-cell infiltration and numerous fatty granular cells in this region. This lesion was probably the cause of the right hemiplegia. Slight degeneration was found in the left anterior pyramid and marked degeneration in the right anterior pyramid by the Marchi stain. Probably sufficient time before death had not elapsed for intense degeneration of the left anterior pyramid, detectable by the osmic acid, to occur.



Section of the roots of the right trigeminal nerve, showing an area almost completely degenerated (Weigert stain.)

Sections of the roots of the right fifth nerve showed much degeneration when stained by the Weigert method or by acid fuchsin with hemalum, and in some parts of the sections the nerve fibers had entirely disappeared. Recent degeneration was revealed by the Marchi method in the right fifth nerve within the pons and within the spinal root of this nerve. The pia over the pons, optic chiasm, and optic nerves presented intense round-cell infiltration. The left crossed pyramidal tract was more degenerated than the right.

We are indebted to Dr. Allan J. Smith for the photograph.